REMARKS

Appreciation is expressed for the Examiner's indication of the preference for explicit definitions of "n" and "L" in the claims. Applicants have now complied, although maintaining strongly the position that the original version of the claims contained no defects under 35 U.S.C. § 112, second paragraph, as alleged. Note, for example, that the term "optical pathlength" was explicitly defined on page 1, lines 13-15 of the specification.

Claims 15-18 are neither anticipated or rendered obvious by Shirasaki. Firstly, for new claims 30-33, there must be two layers in the composite material which must have nL essentially independent of temperature. However, in Shirasaki, as the examiner notes, it is all three layers of its Figure 1 device which together achieve temperature insensitivity. When considering any of the possible binary layer combinations, it is clear from section III of Shirasaki that no temperature insensitivity is achieved. Rather, the coefficients of thermal expansion of both layers in only binary combinations would not offset one another because the prescribed compression effect would be missing. The third layer is necessary for such effect. Thus, claims 30-33 are neither anticipated nor rendered obvious by Shirasaki.

The same is true for above-amended claims 15-18. Shirasaki achieves a certain degree of temperature insensitivity by sandwiching a thin layer having a certain coefficeient of thermal expansion by two layers having a higher coefficient of thermal expansion. No mention is made of any two layers having dn/dT values of different signs. As a result, it is clear that Shirasaki neither anticipates nor renders obvious any of these claims.

In view of these remarks, it can be seen that the examiner's comments on Shirasaki as applied to claim 18 are moot. Any comment is, thus, unnecessary; but this is not to imply any agreement with any aspect of these comments.

Claims 1 and 3-5 are clearly patentable over Durand et al. The same is true for new claim 34. Durand relates to an optical device (band pass filter) which can comprise layers of cesium bromide or silver chloride. This is where any seeming relationship to the current invention ends. For claims 1 and 3-5, the claimed element is "athermal." This clearly renders Durand as "non-alagous art." Under clear Federal Circuit precedent a reference is irrelevant to patentability when

it is neither in the field of the invention nor related to a problem being addressed by the invention. The field in this particular sense, is that of athermal optical elements. Durand, on the other hand, relates to an optical element which is as different from "athermal" as possible. Rather than having optical properties which do not change as temperature changes, the idea in Durand is to design a bandpass filter where the filter's passband wavelength changes upon the application of "activation means," which is exemplified as "the application of heat." See, e.g., column 2, lines 13-15, lines 44-45, etc. It is hard to imagine a reference which could be more non-analogous. Because of this alone, the rejection over Durand must be withdrawn.

This conclusion also relates to claim 34 which deletes the modifier "athermal." Durand deals with bandpass filters, particularly in the infrared range, e.g., a wavelength of 4 μm (column 4, line 56). Although Durand generically mentions applicability to other wavelength regions (column 4, lines 14-23), Durand makes no mention of any desirable surface figures, especially not such a high tolerance of ‹ 200nm. Thus, in no way does Durand motivate a skilled worker to utilize such a high surface figure. The examiner generically alleges that such a high surface figure would be suggested for reasons of long filter life. However, the examiner provides no rationale for this allegation. Whereas it may be obvious to polish optical surfaces in general, there is nothing of record to indicate the obviousness from Durand of such a high tolerance as required by claim 34.

Furthermore, claim 2 is patentable over Brownigg. In this case, the examiner seems to be ignoring the requirements of claim 2 that the surface be that of a crystalline, cubic material. On the other hand, Brownrigg relates to glass materials, i.e., those used as the cladding and core of an optical fiber. Furthermore, the temperature insensitivity of the optical fibers of this reference are achieved only in conjunction with the selection of various geometric properties, such as radii. That is, the requirement of equation 6 of Brownrigg, to which the examiner refers, is not achieved the way this invention does as recited in claim 2, but rather is achieved by determining the radius of the cladding. See, e.g., column 5, lines 9-16. This in no way suggests the optical element of claim 2.

As can be seen, all claims are patentable.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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